REMARKS

The Office Action mailed February 22, 2008 has been received and its contents carefully considered. Reconsideration and withdrawal of the outstanding rejections are respectfully requested in view of the following remarks.

Claims 1-17 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejection in view of the remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-9, 11-17 are rejected under 35 U.S.C 103 (a) as being unpatentable over Fukutomi in view of Haggerty further in view of Dobbins as incorporated by reference in Haggerty. Alternatively claims are rejected under U.S.C 103 (a) as being unpatentable over Haggerty in view of Dobbins in view of Fukutomi. This rejection is respectfully traversed.

The amended claim 1 recites that an Ethernet switch connects with each of a plurality of hosts in a downlink, and connects with a multicast router in an uplink.

Fukutomi discloses a multicast system including a plurality of customer edge (CE) routers and a provider edge (PE) multicast router, and each CE router connects with one host in a downlink, connects with the PE multicast router in an uplink (Fukutomi: paragraph [0078], Figure 9).

It can be seen from the above that Fukutomi fails to disclose an Ethernet switch which connects with each of a plurality of hosts in a downlink and connects with a multicast router in an

uplink, because the CE router is different from the Ethernet switch as known by the skilled person in the art, and in Fukutomi, one CE router is connected with one host, while in the amended claim 1, the Ethernet switch is connected with a plurality of hosts.

Both Dobbins and Haggerty disclose a method for implementing multicast solution in a switched network which consists of a plurality of switches without a multicast router (Haggerty: column 16, lines 22-30, Figure 5; Dobbins: column 5, lines 50-65, Figure 5).

It can be seen from the above that both Dobbins and Haggerty also fail to disclose such an Ethernet switch which connects with each of a plurality of hosts in a downlink and connects with a multicast router in an uplink.

Therefore, Fukutomi, Haggerty and Dobbins are not analogous art, and it would have been unobvious to a person of ordinary skill in the networking art to combine Haggerty and Dobbins into Fukutomi.

Amended claim 1 further recites that the multicast router records a User ID and a vlan ID corresponding to the User ID of the authenticated host.

Fukutomi records in a delivery accept server the User ID of a receiver and the IP address of a PE multicast router connected with the receiver (Fukutomi: Figures 15 and 16), and records in the PE multicast router the IP address and port number of the receiver instead of a User ID (Fukutomi: Figures 11, 12 and 13).

It can be seen from the above that Fukutomi not only fails to disclose that the multicast router

records a User ID, but also obviously fails to disclose that the multicast router records a vlan ID corresponding to the User ID of the authenticated host.

Dobbins and Haggerty disclose an End System/VLAN table and a VLAN/access port table established in each switch in a switched network during a discovery time (Dobbins: column 6, lines 3-40, Fig 7, column 5, line 66 to column 6, line 12; Haggerty: Column 25, lines 45-65).

It can be seen from the above that Dobbins and Haggerty disclose an End System/VLAN table established in each switch in a switched network rather than the multicast router as claimed in the amended claim 1 of the present invention.

The amended claim 1 further recites that the multicast router distributes control commands according to results of the authentication to control multicast forwarding operations of the Ethernet switch.

Fukutomi discloses that the PE multicast forwards packets to one receiver via one CE router connected with the receiver upon the receiver is authenticated successfully (Fukutomi: paragraph [0079]), rather than as disclosed in amended claim 1 distribute control commands according to results of the authentication to control multicast forwarding operations of the Ethernet switch which then distributes packets to ports connected with the receivers which have been authenticated successfully.

It can be seen from the above that Fukutomi also fails to disclose the feature "distribute control commands according to results of the authentication to control multicast forwarding

operations of the Ethernet switch."

Dobbins and Haggerty disclose that the End System/VLAN table in each switch records relationships between VLANs and the End systems connected with this switch, and the VLAN/access port table records relationships between VLANs and the port of End systems connected with this switch. When receiving a broadcast packet from an End system, a switch adds to the broadcast packet a VLAN-ID obtained from the End System/VLAN table and sends the broadcast packet to other switches in the switched network. When receiving the broadcast packet, the other switches extract the VLAN-ID from the broadcast packet so as to obtain the corresponding port from the VLAN/access port table, and forward the broadcast to the corresponding port. (Dobbins: column 6, lines 16-32).

It can be seen from the above that the objective of the establishment of the VLAN/access port table is to transmit packets from a sender via a switched network to all receivers which belong to the same VLAN to which the sender belongs. However, in amended claim 1, the objective of recording the User ID and the Vlan ID corresponding to the User ID of the authenticated host is to obtain the User ID through the Vlan ID and transmit the User ID to the authentication server for authentication of the receiver which wants to join a multicast group. In the other words, in amended claim 1 of the present invention, the User ID and the Vlan ID corresponding to the User ID are at least employed to find a User ID according to the Vlan ID so as to authenticate a host which wants to join in a multicast group. However, in Dobbins and Haggerty, the End System/VLAN table is employed to

find the Vlan ID according to the End system so as to send packets to the VLAN corresponding to the User ID.

Therefore, Fukutomi, Dobbins and Haggerty, individually or in combination, fail to teach or suggest the above essential features of amended claim 1 of the present invention.

In addition, Fukutomi does not disclose the feature "each port through which the host is connected to the Ethernet switch is a vlan port" as claimed in claim 4 of the present invention. Fukutomi discloses PE router ports (See Fukutomi-FIG 16). However, the PE router ports are different from vlan ports of the Ethernet switch, because the PE router corresponds to the multicast router instead of Ethernet switch of the present invention.

Fukutomi does not discloses the feature "according to the vlan ID in the message, searching the corresponding User ID in a multicast access privilege table of the multicast router" as claimed in claim 4. Fukutomi discloses that the IGMP control section 30e extracts the transmitting end IP address of the message of the received IGMP membership report and the group ID address. (Fukutomi-paragraphs [109] - [115]). However, the receiver host is authenticated by using the IP address in the received IGMP membership report instead of the user ID.

Although Haggerty creates a Join message, the Join message does not contain "the vlan ID corresponding to the port that links with the host which wants to join in the multicast group" as claimed in claim 4 of the present invention. Haggerty discloses that if a host wishes to join a multicast session, the local switch of the host checks its connection table for an entry identifying the

designated group address which the local host wishes to join, and if there is no entry, the local switch composes and sends a Join group message to the other switches in the network. (Haggerty-Column 8 lines 15-25, Figure 17). Further, in Haggerty, the Join message is sent from a switch to other switches in a switch network so as to find the multicast resource of the designated group address (Haggerty-Column 8, lines 26-35). However, in claim 4 of the present invention, the Join message is sent from a multicast router to the Ethernet router so as to control multicast forwarding operations of the Ethernet switch.

Haggerty does not disclose the feature "Ethernet switch for, forwarding the IGMP Membership Report message from the host, wherein the IGMP Membership Report message forwarded to the multicast router port carries with the vlan ID of the host" as claimed in claim 4 of the present invention. Haggerty discloses the communication between switches in a switch network (Haggerty-column 15, lines 45-65) instead of the communication between the Ethernet switch and the multicast router.

Haggerty does not disclose the feature "obtaining the port number of the host via searching the forwarding table with the vlan in the Join message" as claimed in claim 4 of the present invention. Haggerty discloses that switching uses source and destination MAC address which, alone or in combination with an input port on a switch, form a unique "connection identifier" for any communication exchange between designated end systems (Haggerty-column 15, lines 48-54).

Fukutomi does not disclose an Ethernet switch. Therefore, Fukutomi does not disclose the

feature "Ethernet switch after receiving a multicast flow from the multicast router, forwarding it to ports of the Ethernet switch with the current forwarding table" as claimed in present claim 4.

Haggerty does not disclose the feature "after knowing offline status of the host, actively generating the leave message and sending to the Ethernet switch; moreover terminating the multicast flow transmission" as claimed in claim 6 of the present invention. Haggerty discloses that if the IGMP detects that no local host has responded to a multicast group poll message on an output part, for each connection in the connection table containing that group, the switch removes that output port from the connection for that multicast group in the connection table (Haggerty-Column 29 lines 40-55). That is, in Haggerty, the switch itself detects whether a local host needs a connection for that multicast group instead of receiving the leave message from the multicast router.

Haggerty discloses that when a switch detects that there are no more local receivers for a multicast group, the switch announces via a "switch leave group" message sent to all other switches, indicating that this switch no longer needs to receive packets for the particular multicast group (Haggerty-Column 31 lines 50-65). However, in claim 8 of the present invention, the Ethernet switch forwards an IGMP leave message from the host to the multicast router; the multicast router generates a leave message to control deleting the entry of the host in the forwarding table after the multicast router receives the IGMP leave message.

Haggerty discloses that when a source host first sends multicast packets to a group address, there is no existing connection at the ingress switch. The switch installs a filter connection to keep

following packets from clogging its host control port. It then announces a sender present message on the signal channel. The sender present message contains the group, the source host, and the source switch identity (Haggerty: Column 21 lines 45-65). Fukutomi discloses that the PE router can be provided with the authentication function to determine whether the user is authenticated. The user authentication server is set to include a multicast receiver authentication table and to transmit the registration content of this table to the PE (Fukutomi: Figure 2, Paragraph 127). In claim 14 of the present invention, the ACL table is used for restricting a multicast sender, however, in Fukutomi, the multicast receiver authentication table is used for restricting the receiver. In Haggerty, the switch installs a filter connection to keep following packets from clogging its host control port. However, in claim 14 of the present invention, the router which first receives a packet determines whether the data messages are allowed to be forwarded to the multicast tree according to the ACL.

In view of the foregoing, Applicants submit that amended claim 1 and its dependent claims 2-6 define over the art cited by the Examiner. Likewise, claim 7 and its dependent claims define over the art cited by the Examiner on the same basis as claims 1-6.

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition

for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

CONCLUSION

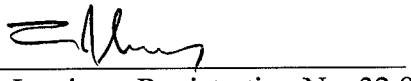
In view of the above remarks, Applicants believe the pending application is in condition for allowance. It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. Thus, prompt and favorable consideration of this amendment is respectfully requested.

Should the Examiner believe that a telephone conference would be helpful in expediting prosecution of the application; the Examiner is invited to telephone the undersigned at 202-861-1696.

In the event this paper is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036 with reference to our Docket No. 56815.0200.

Respectfully submitted,

BAKER & HOSTETLER LLP



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